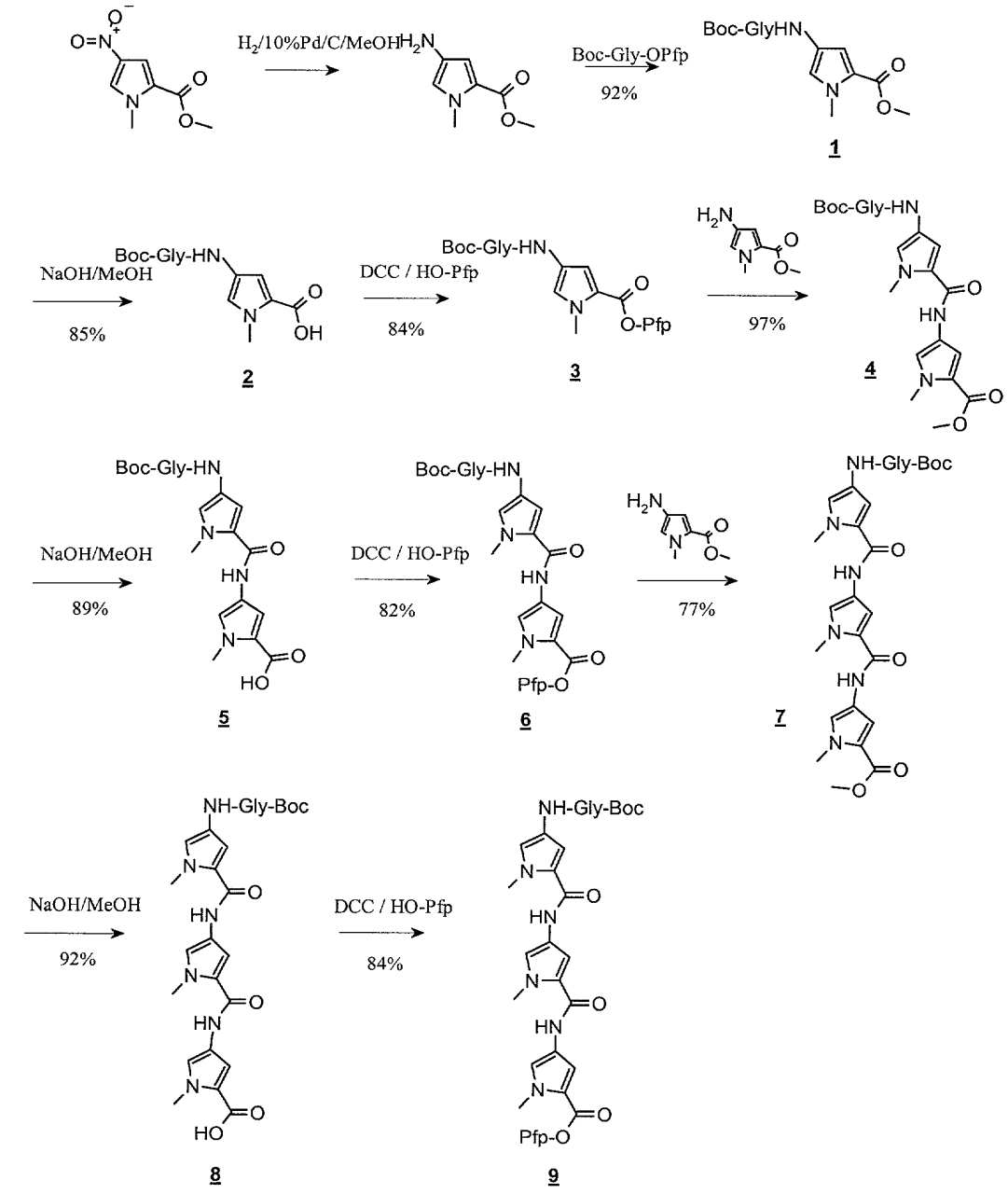
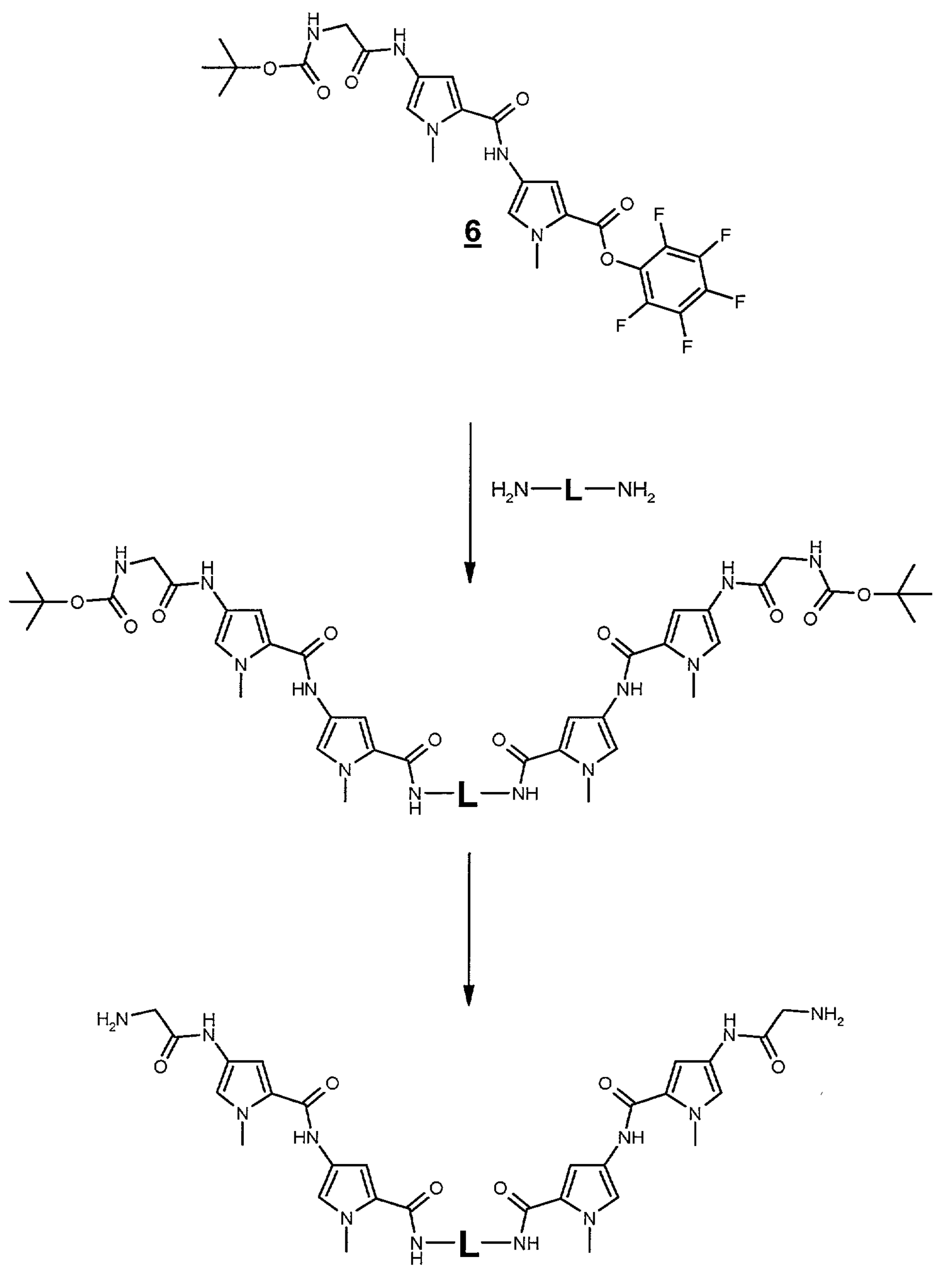
Figure 1



Boc-Gly = Boc-NHCH$_2$-CO-

Figure 2



10 - **44**

L = -$(CH_2)_2$- **10**
-$(CH_2)_3$- **11**
-$(CH_2)_4$- **12**
-$(CH_2)_6$- **13**
-$(CH_2)_8$- **14**
-$(CH_2)_{12}$- **15**
-$CH(CH_3)CH_2$ – R or S isomer **16, 17**

Figure 3

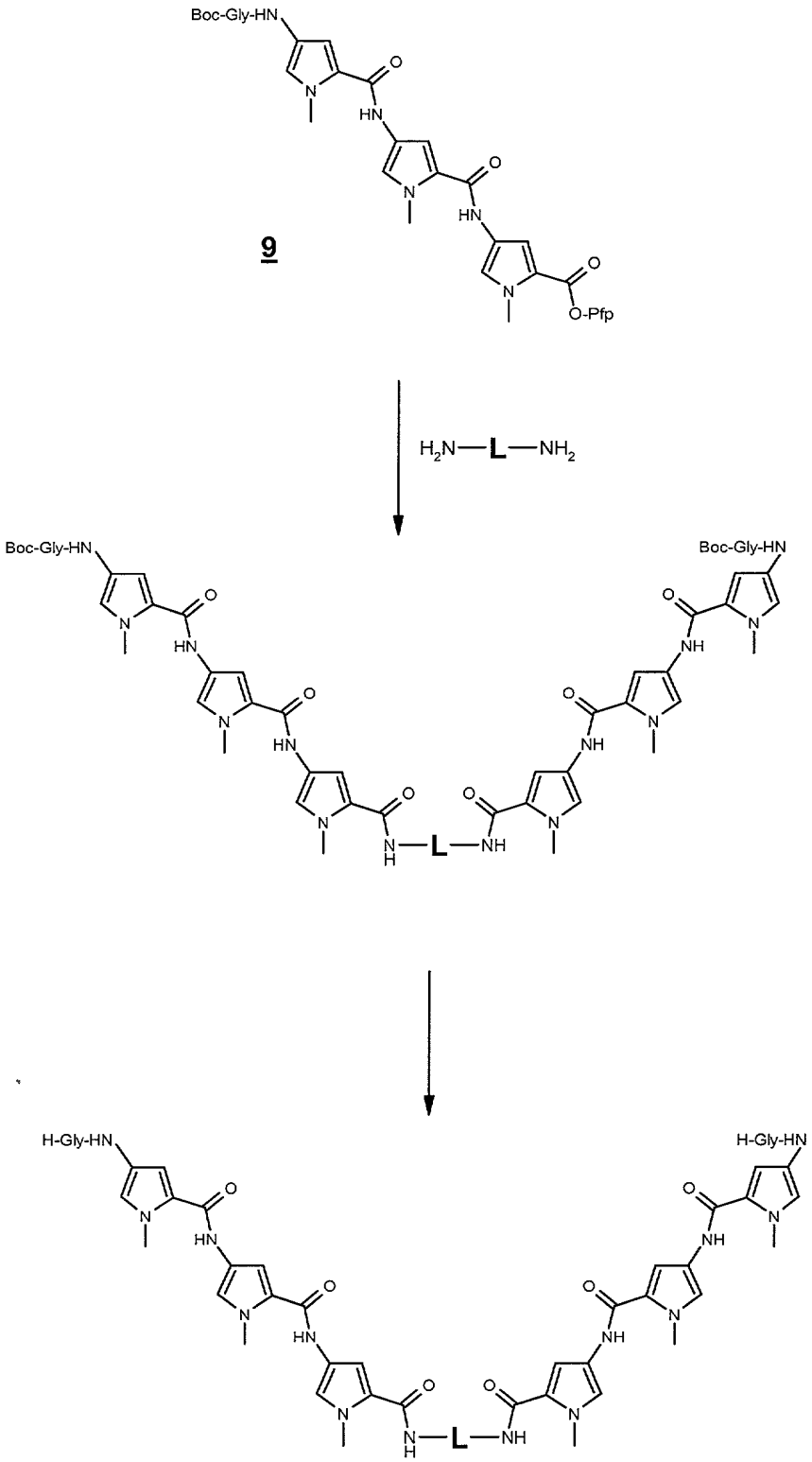


Figure 4

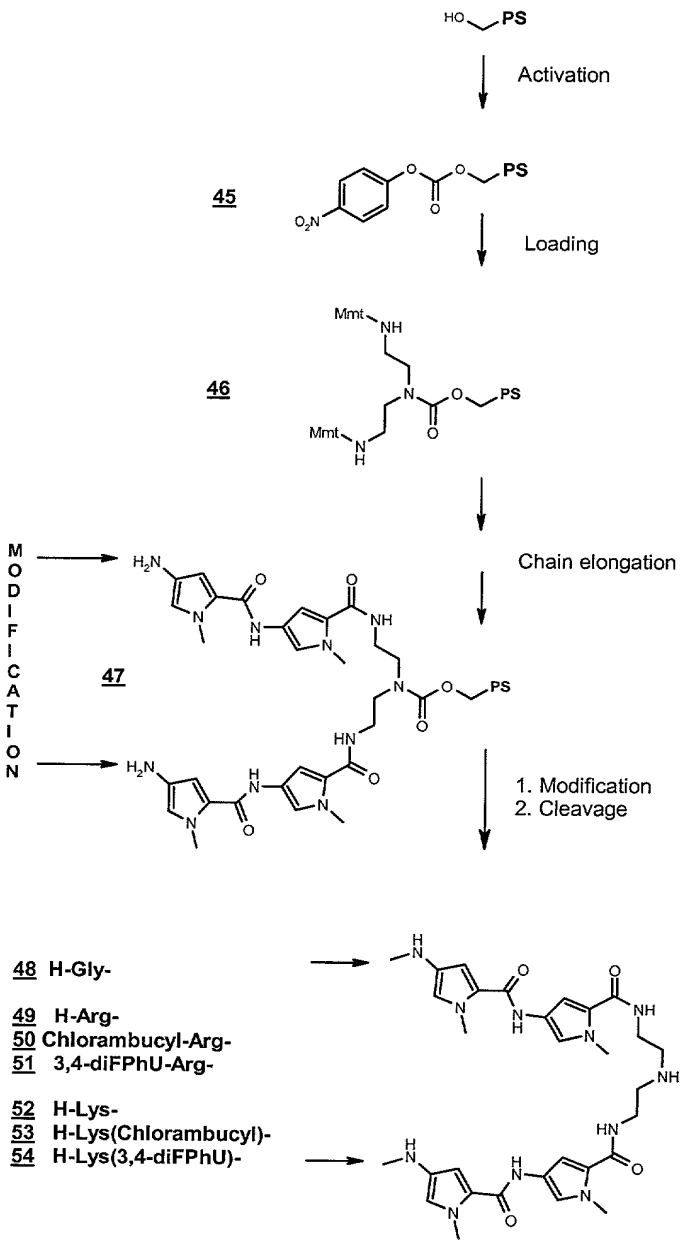

HO PS
Activation
45
PS
Loading
46
Mmt NH
Mmt NH
PS
Chain elongation
MODIFICATION
47
1. Modification
2. Cleavage
48 H-Gly-
49 H-Arg-
50 Chlorambucyl-Arg-
51 3,4-diFPhU-Arg-
52 H-Lys-
53 H-Lys(Chlorambucyl)-
54 H-Lys(3,4-diFPhU)-

Figure 5

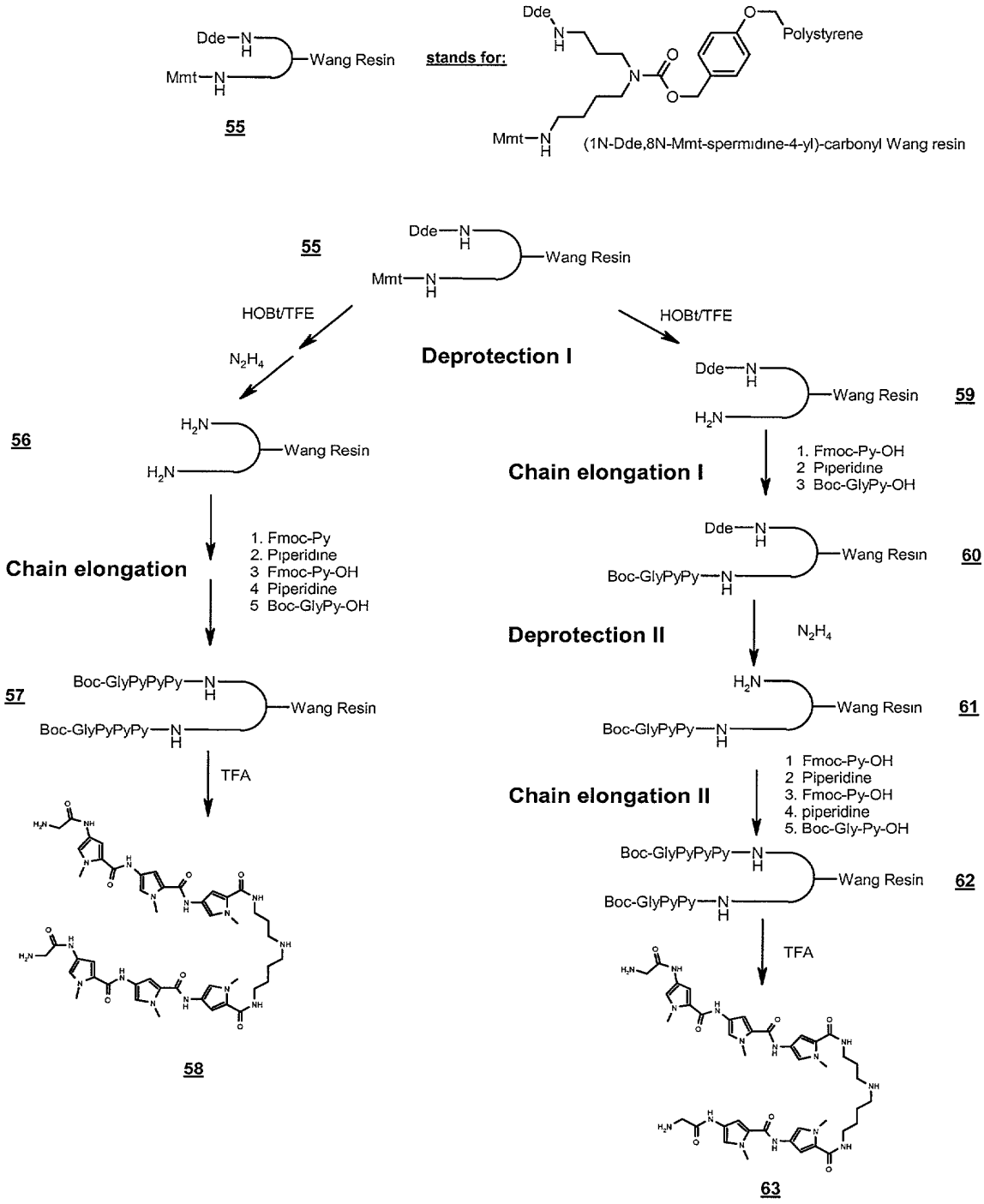
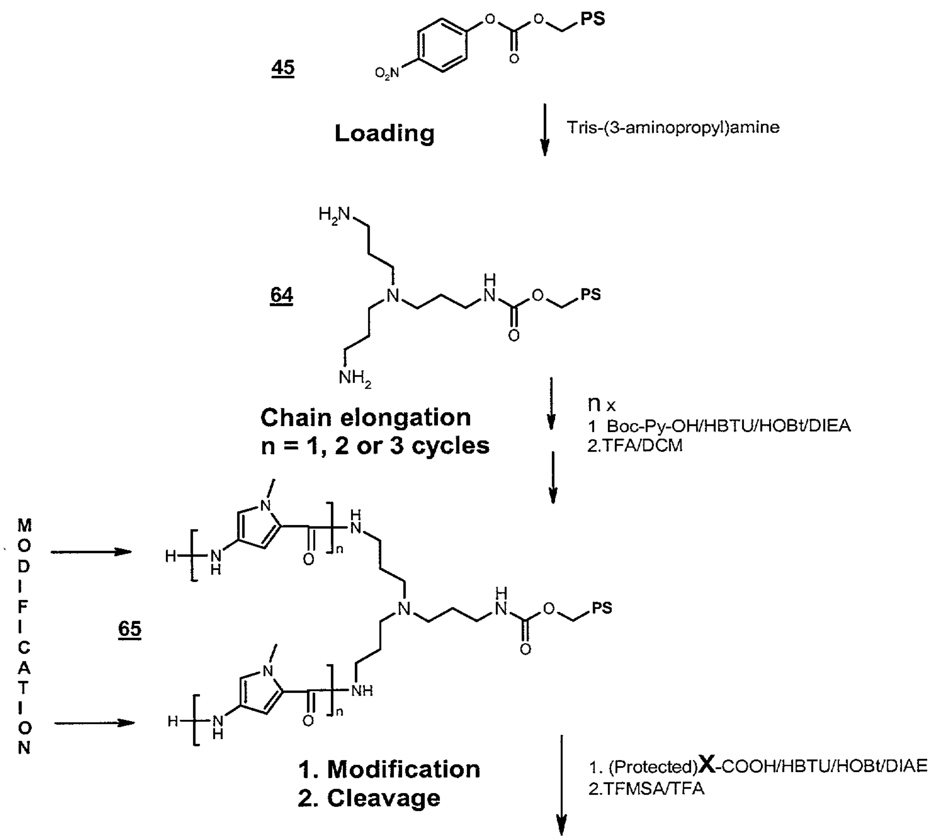

Dde
Wang Resin
Mmt
55
stands for:
Polystyrene
(1N-Dde,8N-Mmt-spermidine-4-yl)-carbonyl Wang resin
HOBt/TFE
N_2H_4
Deprotection I
56
Chain elongation
1. Fmoc-Py
2. Piperidine
3 Fmoc-Py-OH
4 Piperidine
5 Boc-GlyPy-OH
57
Boc-GlyPyPyPy
TFA
58
59
Chain elongation I
1. Fmoc-Py-OH
2 Piperidine
3 Boc-GlyPy-OH
60
Deprotection II
61
Chain elongation II
1 Fmoc-Py-OH
2 Piperidine
3. Fmoc-Py-OH
4. piperidine
5. Boc-Gly-Py-OH
62
63

Figure 6



#	X	n
66	Gly	3
67	Ac	3
68	Ac	2
69	Im	2
70	His	2
71	Im	1
72	Arg	1

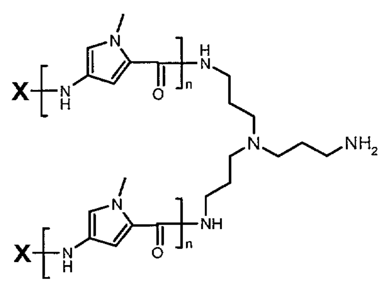


Figure 7

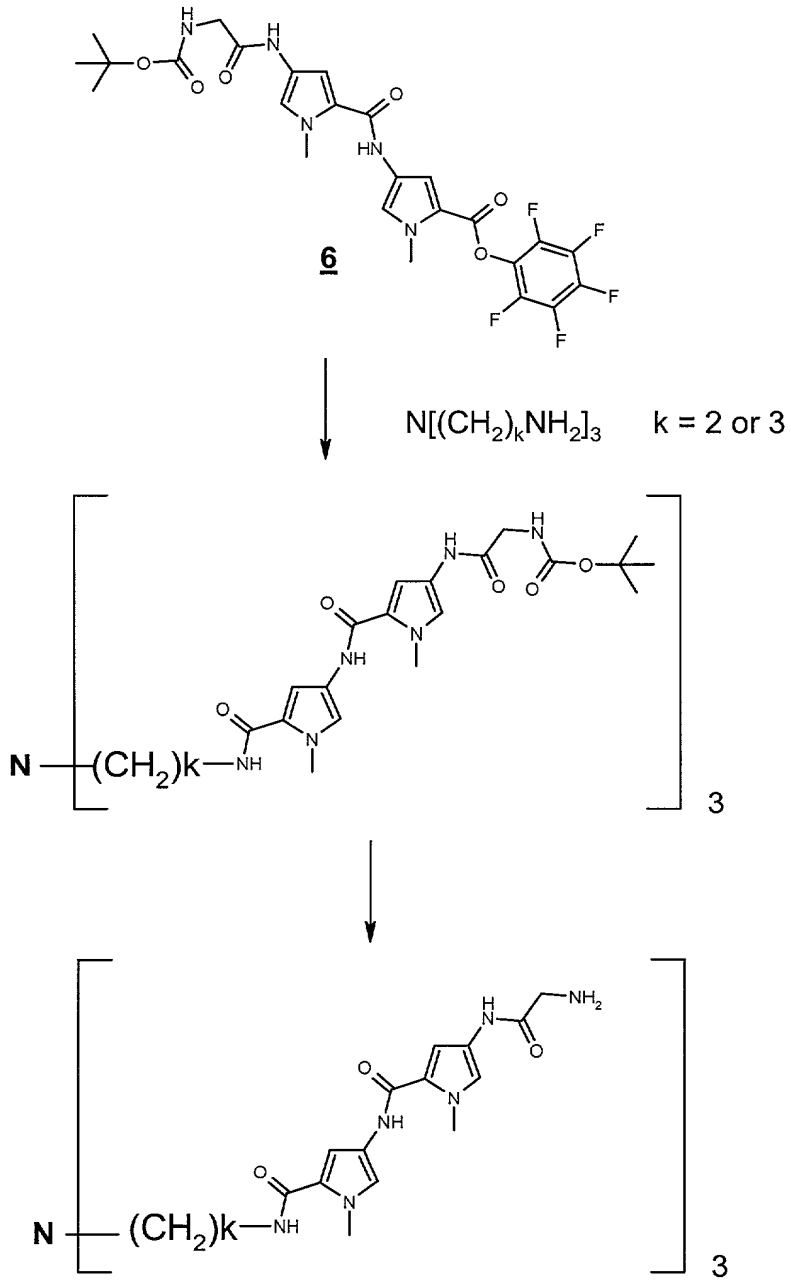


Figure 8

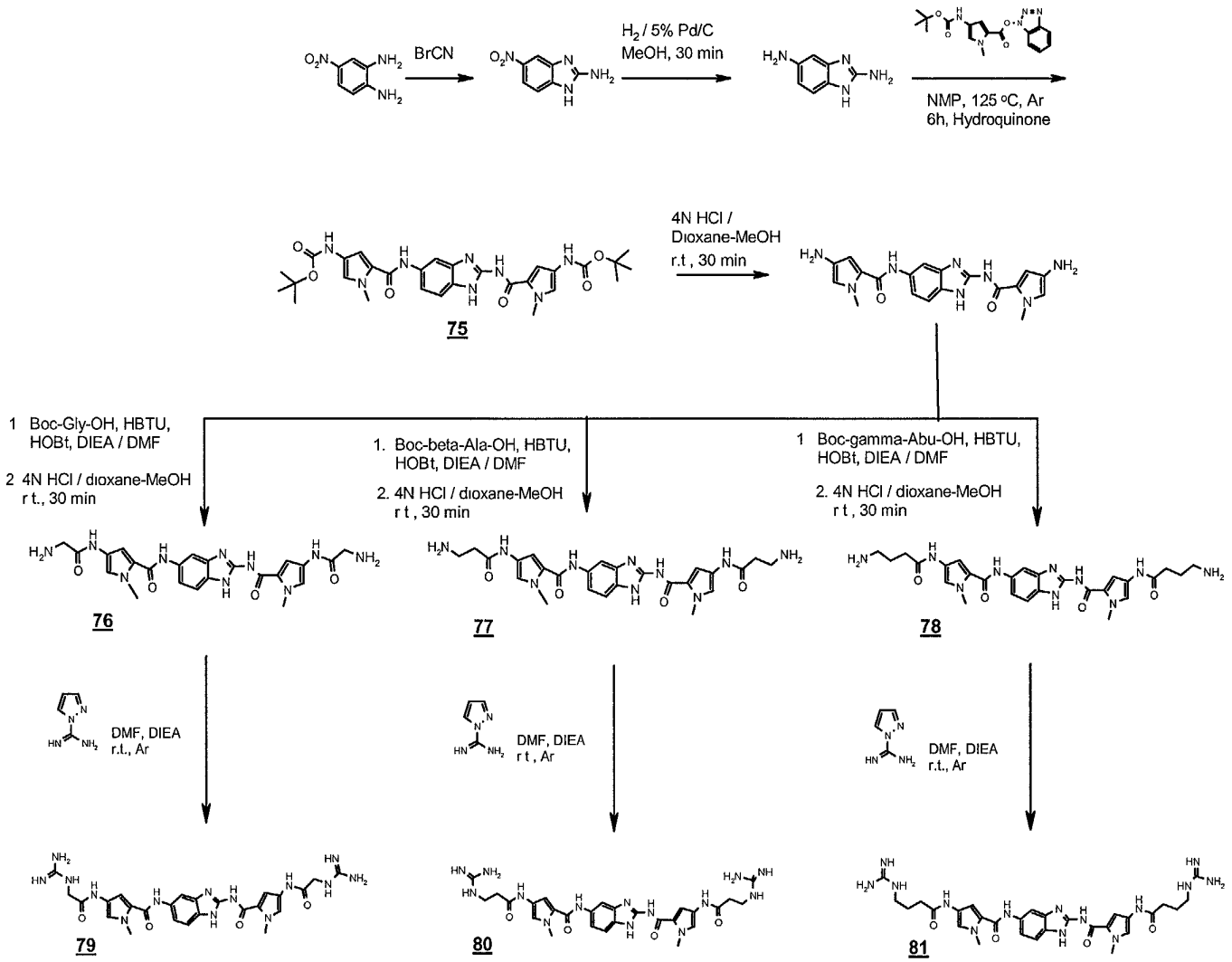
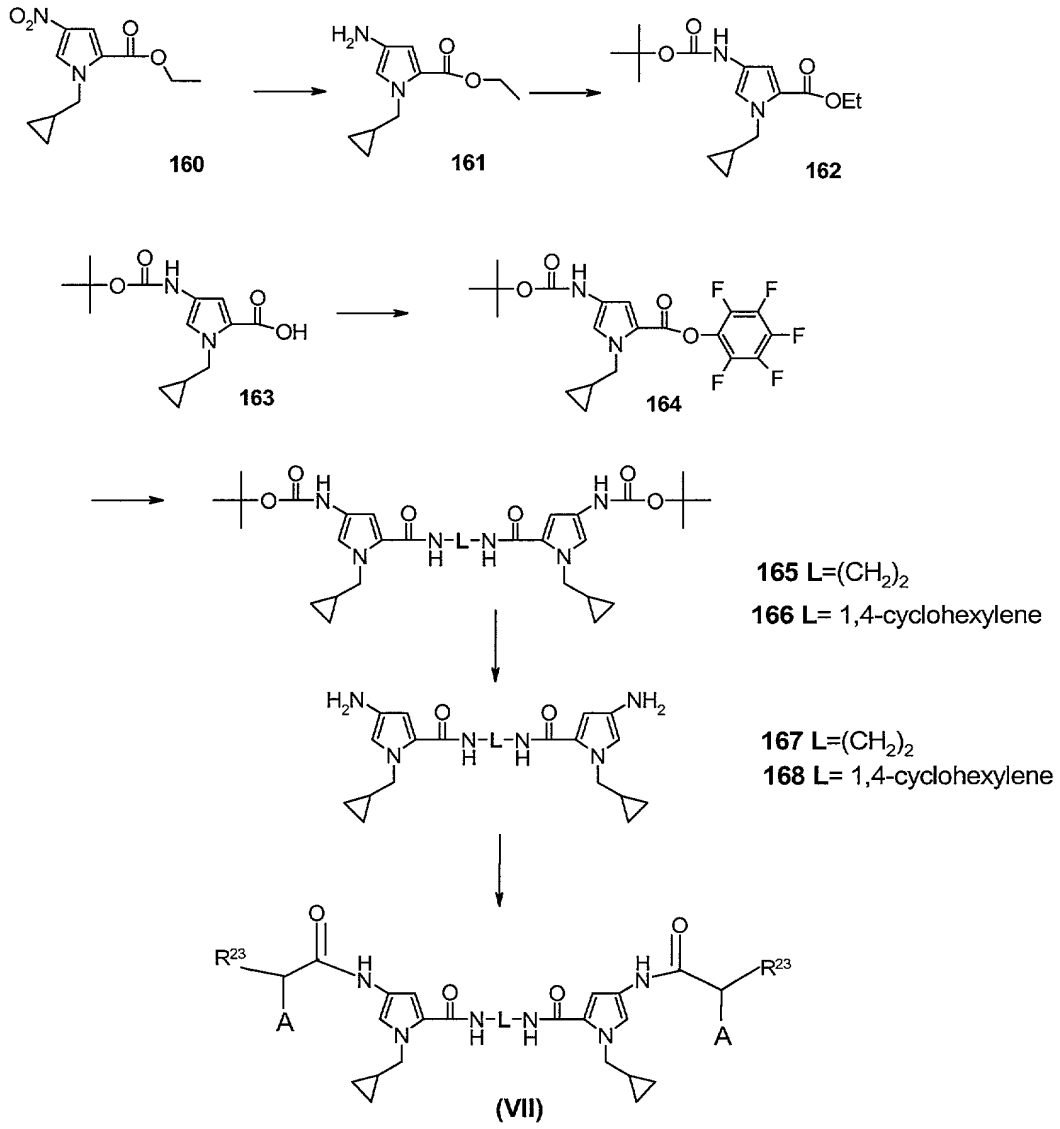

BrCN
H2 / 5% Pd/C
MeOH, 30 min
NMP, 125 °C, Ar
6h, Hydroquinone
4N HCl /
Dioxane-MeOH
r.t , 30 min
75
1 Boc-Gly-OH, HBTU,
HOBt, DIEA / DMF
2 4N HCl / dioxane-MeOH
r t., 30 min
1. Boc-beta-Ala-OH, HBTU,
HOBt, DIEA / DMF
2. 4N HCl / dioxane-MeOH
r t , 30 min
1 Boc-gamma-Abu-OH, HBTU,
HOBt, DIEA / DMF
2. 4N HCl / dioxane-MeOH
r t , 30 min
76
77
78
DMF, DIEA
r.t., Ar
DMF, DIEA
r t , Ar
DMF, DIEA
r.t., Ar
79
80
81

Figure 9



169	**L**=$(CH_2)_2$	A = amino acid side chain of **Gly**
170	**L**= $(CH_2)_2$	A = amino acid side chain of **Val**
171	**L**= 1,4-cyclohexylene	A = amino acid side chain of **Pro**
172	**L**= 1,4-cyclohexylene	A = amino acid side chain of **Pro**
173	**L**= 1,4-cyclohexylene	A = amino acid side chain of **His**

R^{23} = guanidino, amino, or ornithylamino

Figure 10

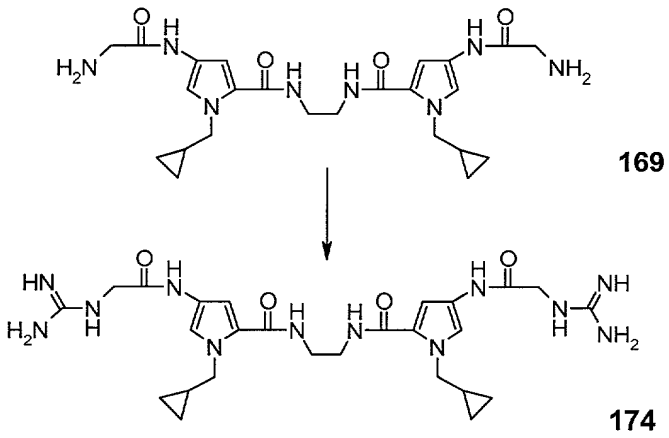


Figure 11

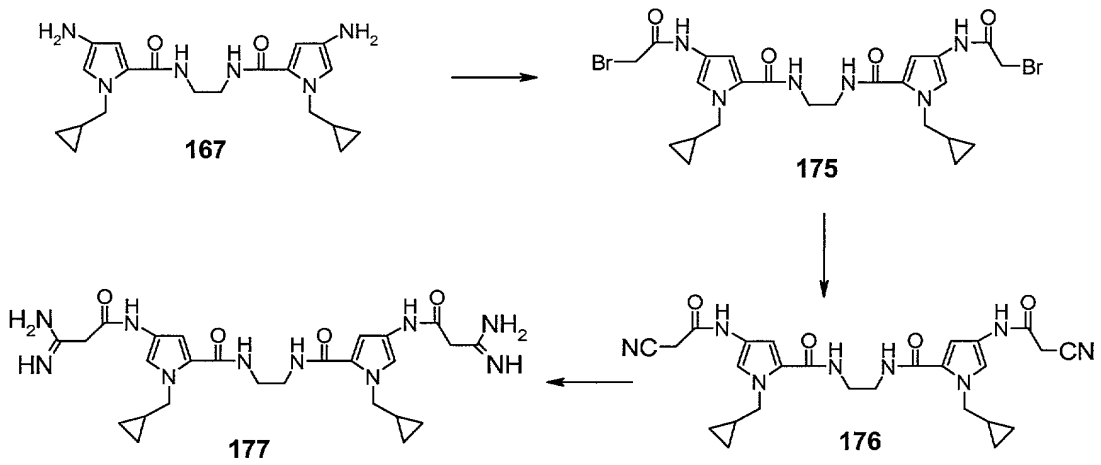
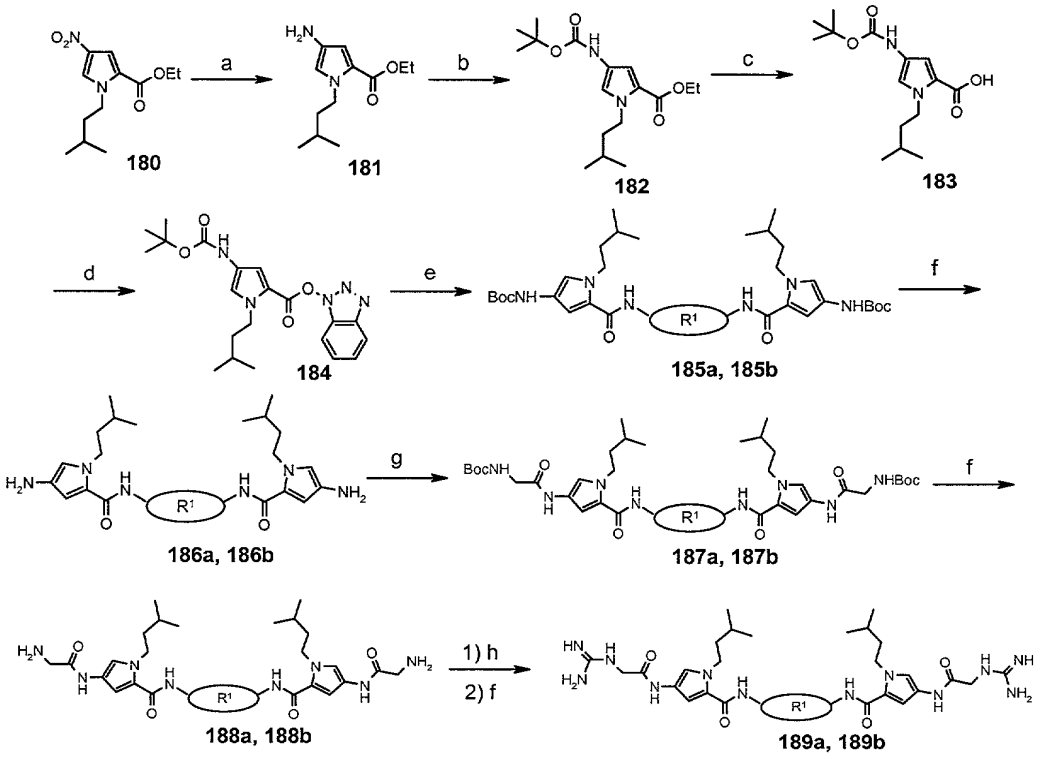
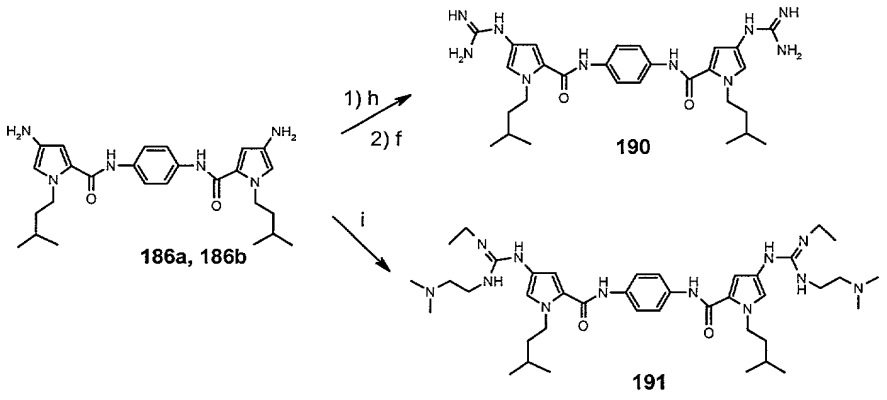


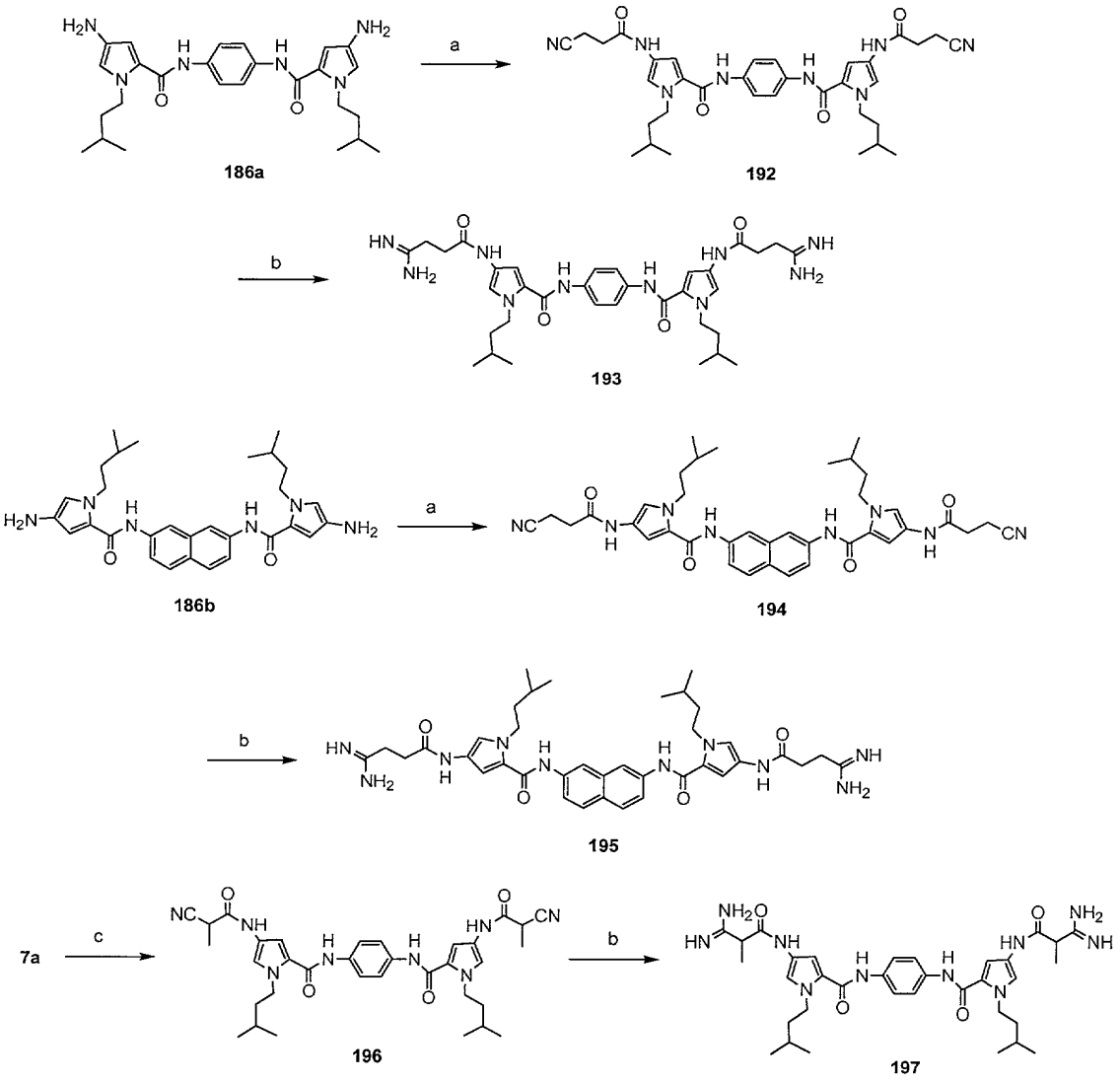
Figure 12





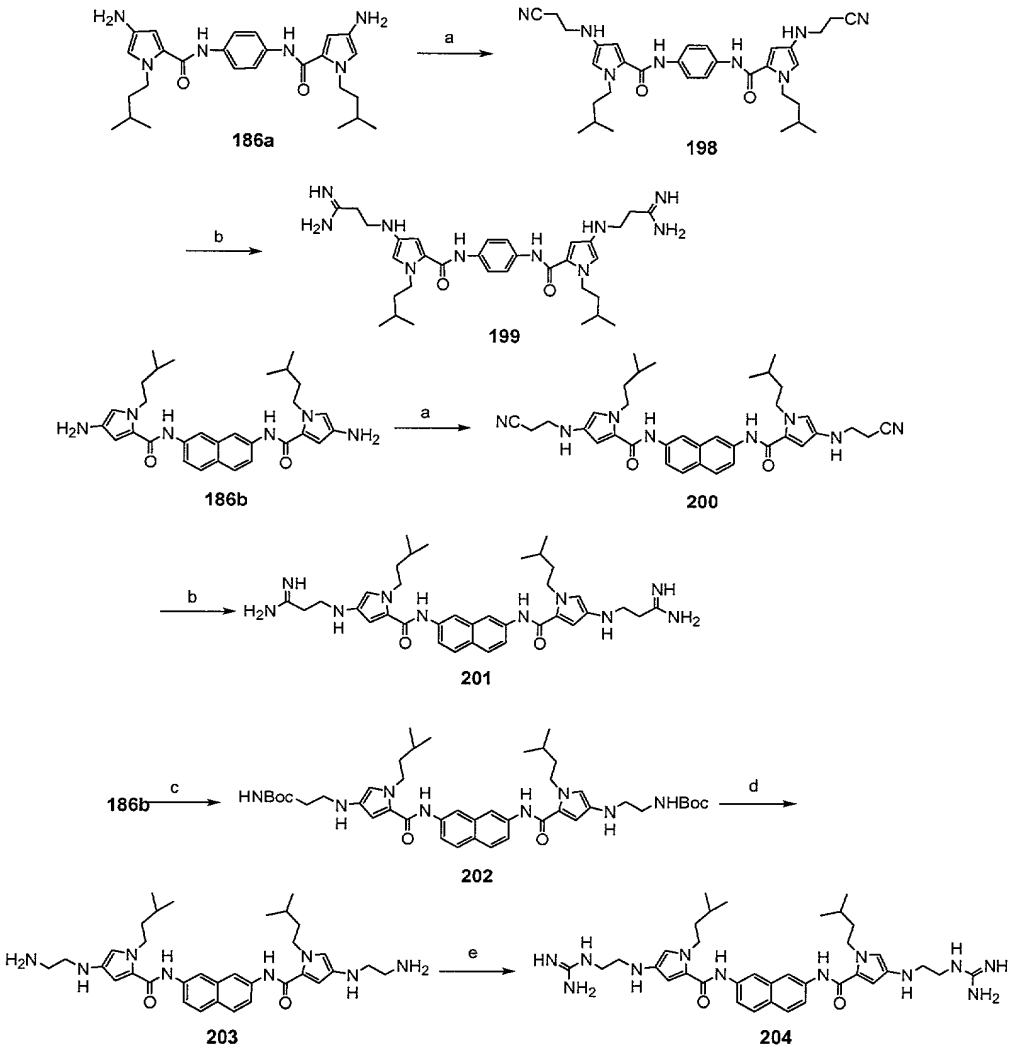
Reaction conditions: (a) H_2, 5% Pt/C, MeOH; (b) $(Boc)_2O$, DMF; (c) 2 M NaOH/MeOH; (d) HOBt, DCC, DMF; (e) Diamine, NMP; (f) 4 M HCl in 1,4-dioxane/MeOH; (g) Boc-Gly-OH, HBTU, HOBt, DIEA, DMF; (h) BocNHCSNHBoc, $HgCl_2$, DMF, Et_3N; (i) EDCI, Et_3N, *tert*-BuOH

Figure 13



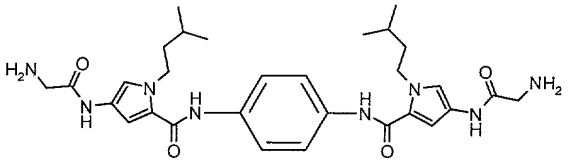
Reaction conditions: (a) 3-Cyanopropionic acid, HBTU, HOBt, DMF; (b) i) HCl/EtOH, ii) NH_3/EtOH; (c) 2-Cyanopropionic acid, HBTU, HOBt, DMF.

Figure 14

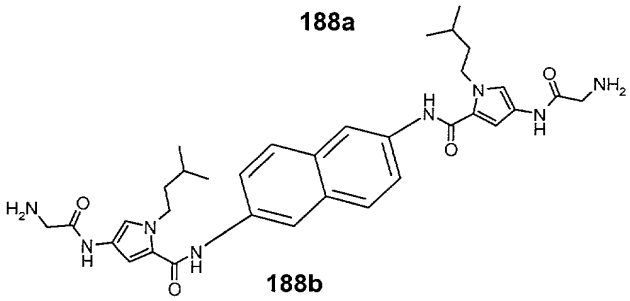


Reaction conditions: (a) 2-Cyanoacetaldehyde, $NaCNBH_3$, MeOH; (b) i) HCl/EtOH, ii) NH_3/EtOH, (c) 2-*t*-Butoxycarbonylaminoacetaldehyde, $NaCNBH_3$, MeOH; (d) 4 M HCl in 1,4-dioxane, MeOH, (e) 1*H*-Pyrazole-1-carboxamide hydrochloride, DIEA, DMF

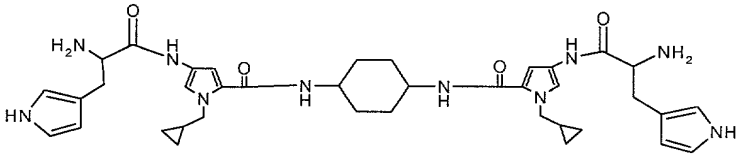
Figure 15



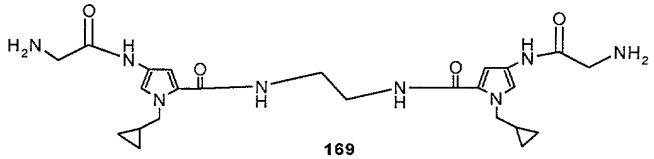
188a



188b



173



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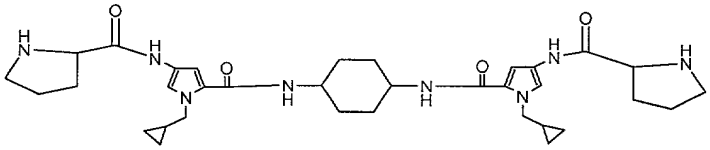

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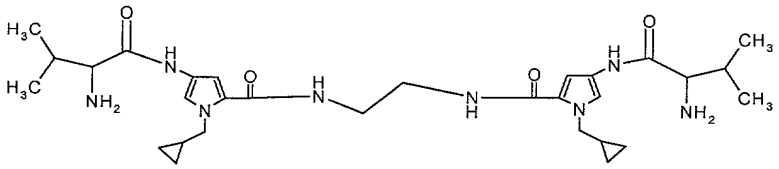

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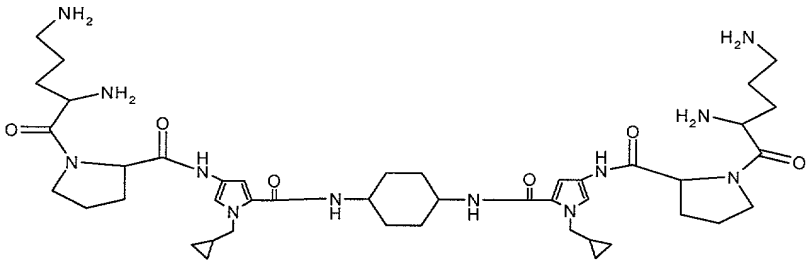
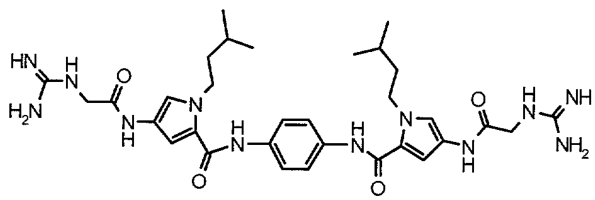
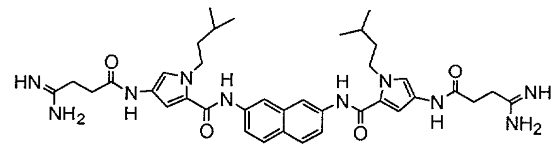


172

Figure 16



189a



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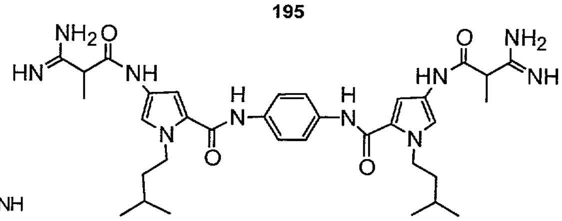

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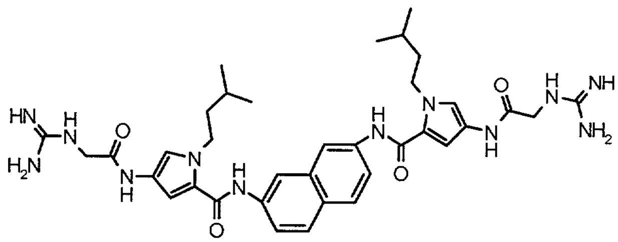

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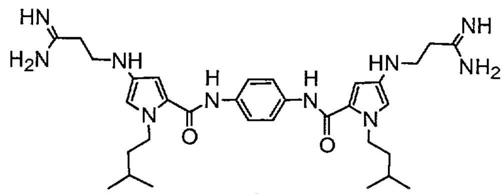

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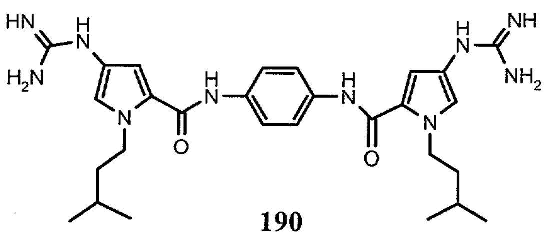

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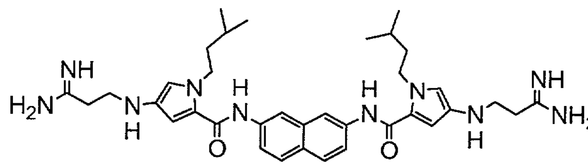

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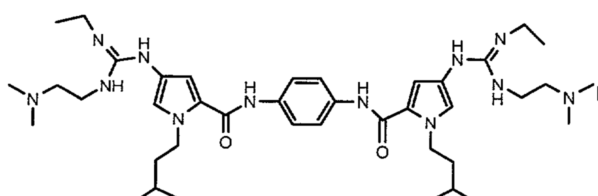

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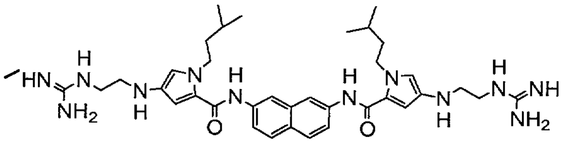

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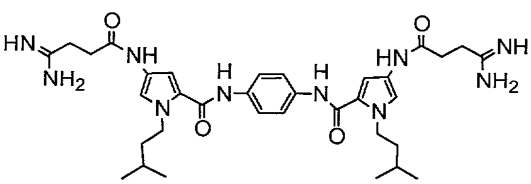

193